

Name Ursamin Axson**IGNEOUS ROCK LAB****Problem:** To identify the properties of igneous rocks.**Background Information:** Use your textbook to answer the following questions on a sheet of notebook paper: - to turn in with lab.

- 1) Define igneous rock.
- 2) How do igneous rocks form?
- 3) What are the 2 basic classifications of igneous rocks according to your book? Define each one.
- 4) Describe how the chemical composition of the rock affects the color of the igneous rock.
- 5) You can tell just by looking at an igneous rock the amount of time it took to cool. Explain how this works. What should you look for?
- 6) Use a computer and go to this site:  
<http://geology.csupomona.edu/alert/Igneous/texture.htm>  
 Explain what each of the 6 textures look like to you.  
 Include the actual name of the texture and then a brief description.

**Materials:**

Samples of igneous rocks	Hand lens
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**Procedures:**

1. Determine the color(s) of the rock and decide whether it is light or dark. Record.
2. Determine the texture of each rock. Decide whether it is coarse grained or fine grained. Record.

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 (A)



3. Determine if the rock is intrusive or extrusive. Record.
4. Determine if the rock is porphyritic. Record.

Data:

Rock #	Color: Light / Dark	Texture: Coarse / Fine Grained	Formation: Intrusive / Extrusive	Porphyritic: Yes / No	Name of Rock
1	light	fine	extrusive	no	dunite
2	light	none	extrusive	no	pumice
3	dark	fine	intrusive	yes	gabro
4	dark	none	extrusive	no	scoria
5	light	fine	extrusive	no	rhyolite
6	dark	none	extrusive	no	obsidian
7	dark	fine	extrusive	no	basalt
8	dark	coarse	intrusive	yes	diorite
9	light	coarse	intrusive	yes	granite

from mineral  
olivine



### Data Analysis:

Identify each rock by its properties. Record.

**Conclusions: Use notebook paper and complete sentences!**

1. Which rock do you think would cool more rapidly, one that cools underground, or one that cools on the surface? Why? Explain your answer.
2. Think about the cooling rates of magma and the definitions for intrusive and extrusive. Would you expect an intrusive rock to have large or small crystals? Why? Explain your answer.
3. Would you expect an extrusive rock to have large or small crystals? Why? Explain your answer.
4. Which rocks in this lab do you think are intrusive? List them.
5. Which rocks in this lab do you think are extrusive? List them.
6. Which rock cooled the slowest? Why? Explain your answer.
7. Which rock cooled the fastest? Why? Explain your answer.
8. What are the major differences between rock # 5 and #7?
9. Explain why understanding the property of texture for igneous rocks is so important when you are trying to identify these samples. What kind of clues does texture give you?

On turn it in .com! by 10/28



## Igneous Rock Lab - Background Information

1. Igneous rock is rock that is formed from <sup>minerals</sup> the cooling of magma.

2. Igneous rocks are formed from magma (the cooling of).

3. Two basic classifications of igneous rocks are:

intrusive: rock cooled with the surrounding rock, it cools slowly and is coarse grained (large crystals).

extrusive: rock cooled on the surface, it cools quickly and has small or no crystals.

4. Minerals such as silicon, aluminum, sodium and potassium makes an igneous rock a light colour. If it has iron, magnesium and calcium makes the rock a dark colour.

5. You can tell if it took a long time to cool if it has more crystals. If it took less time, there are small/no crystals. You look for the crystals and textures.

6. Textures:

Phaneritic: it has larger crystals, <sup>brighter</sup> ~~dark~~ colours, shiny

Aphanitic: <sup>(small)</sup> microscopic crystals, without making bigger looks like it has no crystals, have larger grains

Porphyritic: have 2 obvious different colours, have both large + small grains

Glassy: glassy, no grains

Vesicular: has holes

Fragmental: grainy, can have glass, chalky